REISSUE PATENT APPLICATION TRANSMITTAL

ADDRESS TO:

Mail Stop Reissue
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attorney Docket No.	226749
Client Reference No.	20462-CPA-RI-Div
First Named Inventor	SOGABE, Atsushi
Original Patent No.	6,080,553
Original Patent Issue Date (Month/Day/Year)	6/27/2000
Express Mail Label No.	EV 336877416 US

APPLICATION FOR REISSUE OF: ☒ Utility Patent ☐ Design Patent ☐ Plant Patent
(Check applicable box)

APPLICATION ELEMENTS	ACCOMPANYING APPLICATION PARTS
1. ☒ Transmittal Form with Fee	8. ☒ Statement of status/support for all changes to the claims. See 37 CFR 1.173(c)
2. ☐ Applicant claims small entity status. See 37 CFR 1.27.	9. Original U.S. Patent for surrender ☐ Ribboned Original Patent Grant ☐ Statement of Loss (PTO/SB/55)
3. ☒ Specification and Claims in double column copy of patent format *(amended, if appropriate)*	10. ☐ Foreign Priority Claim (35 USC 119) *(If applicable)*
4. ☒ Drawing(s) *(proposed amendments, if appropriate)*	11. ☒ Information Disclosure Statement (IDS) ☒ Form PTO-1449 ☐ Copies of Listed Documents
5. ☒ Reissue Oath/Declaration *(original or copy)*	12. ☐ English Translation of Reissue Oath/ Declaration *(If applicable)*
6. Original U.S. Patent currently assigned? ☒ Yes ☐ No *(If Yes, check applicable box(es))* ☒ Assent of Assignee ☒ 37 CFR 3.73(b) Statement (included with the Assent of Assignee) ☒ Power of Attorney	13. ☐ Preliminary Amendment 14. ☒ Return Receipt Postcard *(Should be specifically itemized)* 15. ☒ Other: Copy of "Declaration Under 37 CFR 1.132 of Atsushi Sogabe" dated January 29, 2004 from parent U.S. Patent Application No. 09/940,941
7. Nucleotide and/or Amino Acid Sequence Submission a. ☒ Computer Readable Form (CRF) b. Specification Sequence Listing on: i. ☐ CD-ROM or CD-R (2 copies); or ii. ☒ Paper Copy c. ☒ Statement verifying identity of above copies	

15. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information below:
☐ Continuation ☒ Divisional ☐ Continuation-in-part of prior application no. 09/940,941.
Prior application information: Examiner Elizabeth Slobodyansky; Group Art Unit: 1652

Instructions for Calculating Claim Fees:
If Total Claims In Patent is greater than 20, use Number Filed In Reissue Application minus Total Claims In Patent; if Claims In Patent is less than 20, use Number Filed In Reissue Application minus 20.

CLAIMS AS FILED - PART 1

BASIC FEE					$770.00
	CLAIMS IN PATENT	NUMBER FILED IN REISSUE APPLICATION	NUMBER EXTRA	RATE	
TOTAL CLAIMS	23	5	0	x$18.00	$0.00
INDEPENDENT CLAIMS	4	1	0	x$86.00	$0.00
				Total of above calculations =	$770.00
				Reduction by 50% for filing by small entity =	($0.00)
				TOTAL =	$770.00

REISSUE PATENT APPLICATION TRANSMITTAL	Patent No. 6,080,553 Attorney Docket No. 226749 Client Reference No. 20462-CPA-RI-Div

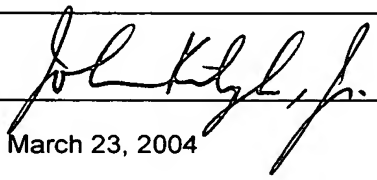
16. ☒ Please charge my Deposit Account No. 12-1216 in the amount of $770.00. A duplicate copy of this sheet is enclosed.

17. ☐ A check in the amount of $ is enclosed.

18. The Commissioner is hereby authorized to credit overpayments or charge any additional fees of the following types to Deposit Account No. 12-1216:
    a. ☒ Fees required under 37 CFR 1.16.
    b. ☒ Fees required under 37 CFR 1.17.

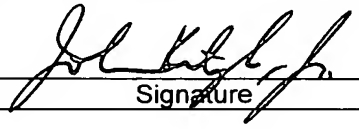
21. CORRESPONDENCE ADDRESS

☒Customer Number: 23460 23460	☐ John Kilyk, Jr., Reg. No. 30,763 Leydig, Voit & Mayer, Ltd. Two Prudential Plaza, Suite 4900 180 North Stetson Avenue Chicago, Illinois 60601-6780 Telephone: (312) 616-5600 Facsimile: (312) 616-5700

Name	John Kilyk, Jr., Reg. No. 30,763
Signature	
Date	March 23, 2004

Certificate of Mailing Under 37 CFR 1.10

I hereby certify that this Reissue Patent Application Transmittal and all accompanying documents are being deposited with the United States Postal Service "Express Mail Post Office To Addressee" Service under 37 CFR 1.10 on the date indicated below and is addressed to: Mail Stop Reissue, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.

John Kilyk, Jr.		March 23, 2004
Name of Person Signing	Signature	Date

Reissue Transmittal (Revised 10/1/03)

PATENT
Attorney Docket No. 226749
Client Reference No. 20462-CPA-RI-Div

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Sogabe et al.

Application No.: Unassigned

Filed: March 23, 2004

Assigned to Toyo Boseki Kabushiki Kaisha

Reissue of U.S. Patent No. 6,080,553

Issued: June 27, 2000

Art Unit: 1652

Examiner: Elizabeth Slobodyansky

For: CREATINE AMIDINOHYDROLASE, PRODUCTION THEREOF AND USE THEREOF

STATEMENT OF STATUS/SUPPORT FOR CLAIM CHANGES PURSUANT TO 37 CFR § 1.173

Mail Stop Reissue
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Claims 1-23 have been cancelled, and new claims 24-28 have been added. As a result, claims 24-28 are the only pending claims. The status of all claims, as of the date of this communication, is reflected in Appendix A.

New claims 24-28 are directed to the subject matter that was recited in claims 71-75 of the other reissue application for the subject patent, i.e., Application No. 09/940,941, which claims 71-75 were cancelled in response to a restriction requirement in Application No. 09/940,941. New claims 24-28 in the present application are identical to claims 71-75 in Application No. 09/940,941, except for the requisite renumbering of the claims. As was the situation with claims 71-75 in Application No. 09/940,941, claims 24-28 in the present application are supported by the specification at column 2, lines 10-47, column 3, line 64, through column 5, line 2, and the Examples. Accordingly, no new matter has been added by way of the claim changes in the present application.

As regards the specification and abstract changes, these changes are identical to the specification and abstract changes made in Application No. 09/940,941, except for the addition of the requisite divisional reissue language in the present application immediately after the title. For ease in identifying the specification and abstract amendments, the specification and abstract changes are summarized in Appendix B and Appendix C, respectively.

The change of the isoelectric point (pI) value in the specification, claims, and abstract does not constitute new matter for the same reasons provided in Application No. 09/940,941, which reasons are repeated below for convenience.

U.S. Patent 6,080,553 describes three specific novel creatine amidinohydrolases, which can be obtained from the following deposited materials: *Escherchia coli* JM109 (pCRH273M2), *Escherchia coli* JM109 (pCRH273M1), and *Escherchia coli* JM109 (pCRH273M3). By comparison of Tables 2, 4, and 6 set forth in U.S. Patent 6,080,553, it is apparent that the majority of the physicochemical properties are conserved between the novel creatine amidinohydrolases, including the pI value. U.S. Patent 6,080,553 also describes a group of novel creatine amidinohydrolases that include the three specific novel creatine amidinohydrolases disclosed in U.S. Patent 6,080,553.

The accompanying Rule 132 Declaration of Atsushi Sogabe (a copy of the Rule 132 Declaration submitted in Application No. 09/940,941 is submitted herewith for convenience) discusses what the disclosure of U.S. Patent 6,080,553 would mean to one of ordinary skill in the art in 1996 (i.e., at the time of the priority date for the present patent application), as well as today.

The ordinary skilled artisan would understand that U.S. Patent 6,080,553 pertains to creatine amidinohydrolases, which are described in various terms, including by reference to isoelectric point, in that patent (Rule 132 Declaration, paragraph 3). The isoelectric point (pI) of a protein can be determined experimentally or from the amino acid sequence of the protein (Rule 132 Declaration, paragraph 4). U.S. Patent 6,080,553 provides the amino acid

sequence of wild-type creatine amidinohydrolase derived from *Alcaligenes faecalis* and describes specific mutants thereof (Rule 132 Declaration, paragraphs 5-6). In 1996, one of ordinary skill in the art would have been able to determine the pI values of the wild-type creatine amidinohydrolase and the mutants thereof, as well as any other creatine amidinohydrolases (Rule 132 Declaration, paragraphs 5-6).

One of ordinary skill in the art would have understood in 1996 that U.S. Patent 6,080,553 describes three specific novel creatine amidinohydrolases as well as a group of novel creatine amidinohydrolases that include the three specific novel creatine amidinohydrolases (Rule 132 Declaration, paragraphs 7-8).

If an ordinarily skilled artisan read U.S. Patent 6,080,553 in about 1996, the ordinarily skilled artisan would have recognized that the three specific novel creatine amidinohydrolases described in U.S. Patent 6,080,553 are a representative subset of a group of novel creatine amidinohydrolases disclosed in U.S. Patent 6,080,553 with a shared set of physicochemical properties (Rule 132 Declaration, paragraph 9). The ordinarily skilled artisan also would have recognized that the pI value would be conserved among the members of this group of novel creatine amidinohydrolases as a function of conserving the function and physiological properties of the novel creatine amidinohydrolases (Rule 132 Declaration, paragraph 9).

If an ordinarily skilled artisan determined that the actual pI value of the three specific novel creatine amidinohydrolases described in U.S. Patent 6,080,553 differed from the pI value reported in U.S. Patent 6,080,553 for those three specific novel creatine amidinohydrolases, the ordinarily skilled artisan would have understood that the actual pI value characterized not only the three *specific* novel creatine amidinohydrolases but also the *group* of novel creatine amidinohydrolases that contained those three specific novel creative amidinohydrolases (Rule 132 Declaration, paragraph 10).

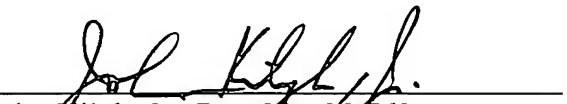
The actual pI value of the three specific novel creatine amidinohydrolases described in U.S. Patent 6,080,553 is about 4.5, rather than the about 3.5 reported in U.S. Patent 6,080,553 (Rule 132 Declaration, paragraphs 11-16). The actual pI values of various other

creatine amidinohydrolasesalso are known to be about 4.5 (Rule 132 Declaration, paragraph 17). Since the pI value of the three *specific* novel creatine amidinohydrolases was determined experimentally to be about 4.5, the pI value of the *group* of novel creatine amidinohydrolases with the three specific novel creatine amidinohydrolases as members also would be understood by one of ordinary skill in the art, reading U.S. Patent 6,080,553, to be about 4.5 (Rule 132 Declaration, paragraph 18).

The specification, claim, and abstract amendments relating to the pI value cannot be considered to introduce new matter, since the specification describes multiple characteristics of the *group* of novel creatine amidinohydrolases, including a deposit of the bacterial strains comprising the three novel creatine amidinohydrolases which are members of the *group* of novel creatine amidinohydrolases recited in the claims, such that upon reading U.S. Patent 6,080,553, together with what was known in the art, at the time of the priority date of the patent application in 1996, one of ordinary skill in the art would have been able to determine that the pI value of the claimed group of novel creatine amidinohydrolases is about 4.5 and would have understood that a pI value of 4.5 was a characteristic of the claimed group of novel creatine amidinohydrolases.

The application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,



John Kilyk, Jr., Reg. No. 30,763
LEYDIG, VOIT & MAYER, LTD.
Two Prudential Plaza, Suite 4900
180 North Stetson
Chicago, Illinois 60601-6780
(312) 616-5600 (telephone)
(312) 616-5700 (facsimile)

Date: March 23, 2004

CLAIM STATUS – APPENDIX A

1.-23. (Cancelled)

24. (Pending – Once Amended) A method of preparing a creatine amidinohydrolase comprising:

(i) mutating (a) the nucleic acid sequence of SEQ ID NO:2 or (b) a nucleic acid sequence encoding the amino acid sequence of SEQ ID NO:1 to provide mutant nucleic acid sequences,

(ii) determining Km values of proteins encoded by the mutant nucleic acid sequences in a coupling assay using a sarcosine oxidase and a peroxidase,

(iii) selecting and isolating a desired mutant nucleic acid sequence that encodes a creatine amidinohydrolase having the following physicochemical properties:

Action: catalyzing the following reaction:

creatine + $H_2O \rightarrow$ sarcosine + urea

Km values for creatine in a coupling assay using a sarcosine oxidase and a peroxidase: 3.5-10.0 mM,

(iv) expressing the desired mutant nucleic acid sequence in a host to produce creatine amidinohydrolase, and

(v) harvesting the produced creatine amidinohydrolase.

25. (Pending – Once Amended) The method of claim 24, wherein the creatine amidinohydrolase has a molecular weight of about 43,000 (SDS-PAGE).

26. (Pending – Once Amended) The method of claim 25, wherein the creatine amidinohydrolase has an isoelectic point of about 4.5.

27. (Pending – Once Amended) The method of claim 26, wherein the creatine amidinohydrolase has an optimum temperature of about 40-50 °C (at pH of about 7.5).

28. (Pending – Once Amended) The method of claim 27, wherein the creatine amidinohydrolase has an optimum pH of about 8.0-9.0 (at a temperature of about 37 °C).

SPECIFICATION AMENDMENTS – APPENDIX B

At column 1, immediately after the title, the following paragraph was inserted:

CROSS-REFERENCE TO RELATED APPLICATIONS

More than one reissue application has been filed for the reissue of U.S. Patent No. 6,080,553. The reissue applications are the present application and Application No. 09/940,941, each of which are a divisional reissue of U.S. Patent No. 6,080,553.

At column 2, line 47, "3.5" was changed to --4.5--.

At column 2, line 64, "3.5" was changed to --4.5--.

At column 3, line 35, "3.5" was changed to --4.5--.

At column 3, line 49, "3.5" was changed to --4.5--.

At column 3, line 63, "3.5" was changed to --4.5--.

At column 5, line 16, "3.5" was changed to --4.5--.

At column 10, line 31, "3.5" was changed to --4.5--.

At column 11, line 27, "3.5" was changed to --4.5--.

At column 12, line 27, "3.5" was changed to --4.5--.

ABSTRACT AMENDMENTS – APPENDIX C

In the Abstract, at line 12, "3.5" was changed to --4.5--.